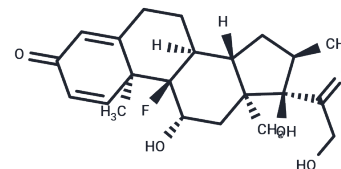


## Dexamethasone

## Chemical Properties

CAS No. :	50-02-2
Formula:	C <sub>22</sub> H <sub>29</sub> FO <sub>5</sub>
Molecular Weight:	392.46
Appearance:	solid
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year



## Biological Description

Description	Dexamethasone (Hexadecadrol) is a glucocorticoid receptor agonist and an IL receptor modulator. Dexamethasone has anti-inflammatory and immunosuppressive activity and induces autophagy. Dexamethasone inhibits LPS-induced inflammatory responses in macrophages.
Targets(IC50)	Glucocorticoid Receptor,Mitophagy,IL Receptor,SARS-CoV,Antibacterial,Antibiotic,Autophagy,Complement System
In vitro	<p><b>METHODS:</b> Human colorectal cancer cells LoVo and HCT116 were treated with Dexamethasone (10-300 <math>\mu</math>M) for 72 h. Cell growth inhibition was detected by MTT.</p> <p><b>RESULTS:</b> Dexamethasone dose-dependently inhibited the growth of LoVo and HCT116 cells, and the inhibition rates of 300 <math>\mu</math>M Dexamethasone were 52.6% and 58.8%, respectively. [1]</p> <p><b>METHODS:</b> Acute lymphoblastic leukemia cells RS4;11 were treated with Dexamethasone (100 nM) for 24-36 h. Cell morphology was examined using electron microscopy.</p> <p><b>RESULTS:</b> In cells treated with Dexamethasone for 24 h, vesicles were surrounded by double membranes, which are characteristic of autophagosomes, and contained membrane structures and/or part of the endoplasmic reticulum or a large amount of cytoplasm. In addition to the appearance of autophagosomes, the nucleus and cell morphology were initially intact, suggesting that autophagosome formation preceded cell death. Dexamethasone induces autophagy. [2]</p> <p><b>METHODS:</b> Activated mouse and human T cells were treated with Dexamethasone (0.001-10 <math>\mu</math>M) for 48 h, and PD-1 expression was detected by Flow Cytometry.</p> <p><b>RESULTS:</b> Dexamethasone enhanced the expression of PD-1 in mouse and human activated T cells. [3]</p>
In vivo	<p><b>METHODS:</b> To investigate the anti-inflammatory effects, Dexamethasone (1-10 mg/kg) was administered as a single intraperitoneal injection to LPS-induced inflammation in C57Bl/6JBom mice.</p> <p><b>RESULTS:</b> 10 mg/kg Dexamethasone significantly reduced neutrophils in bronchoalveolar lavage fluid.Dexamethasone treatment significantly down-regulated the levels of TNF-<math>\alpha</math>, IL-1<math>\alpha</math>, IL-1<math>\beta</math>, IL-6, IL-12p40 and MIP-1<math>\alpha</math> mRNA. Dexamethasone exerts anti-inflammatory and antioxidant functions in acute airway inflammation. [4]</p> <p><b>METHODS:</b> To detect anti-tumor activity in vivo, Dexamethasone (1 mg/kg) was intraperitoneally injected into SCID mice harboring the human myeloma tumor OPM2 five days per week for three weeks.</p> <p><b>RESULTS:</b> Dexamethasone treatment significantly inhibited the growth of OPM2 tumors,</p>

indicating antitumor activity in vivo. [5]

#### Animal Research

NAC was administered at three different doses (10, 100 and 500 mg/kg body weight). At the highest concentration, the acidic pH of the NAC solution was adjusted by adding NaOH. Dexamethasone was administered as a single injection of 1 or 10 mg/kg. Both drugs were dissolved in saline and 400 µl were injected intraperitoneally, either 1 h before or 1 h after LPS exposure. In one experiment, NAC (100 and 500 mg/kg) was injected successively every 4-5 h, starting 1 h before challenge (five injections in total). A control group of LPS-exposed animals were injected intraperitoneally with solvent alone (saline). Intratracheal administration was performed by instillation of 100 µl NAC (50, 100 or 500 mg/kg) or dexamethasone (10 mg/kg) into the lungs of mice anaesthetized with 15 mg/kg Rapinovel (i.v.) [4].

#### Solubility Information

##### Solubility

Ethanol: 6 mg/mL (15.28 mM),  
DMSO: 45 mg/mL (114.66 mM),  
( $< 1$  mg/ml refers to the product slightly soluble or insoluble)

#### Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.548 mL	12.7402 mL	25.4803 mL
5 mM	0.5096 mL	2.548 mL	5.0961 mL
10 mM	0.2548 mL	1.274 mL	2.548 mL
50 mM	0.051 mL	0.2548 mL	0.5096 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

#### Reference

He J, et al. Dexamethasone affects cell growth/apoptosis/chemosensitivity of colon cancer via glucocorticoid receptor  $\alpha$ /NF- $\kappa$ B. Oncotarget. 2017 Jun 28;8(40):67670-67683.

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